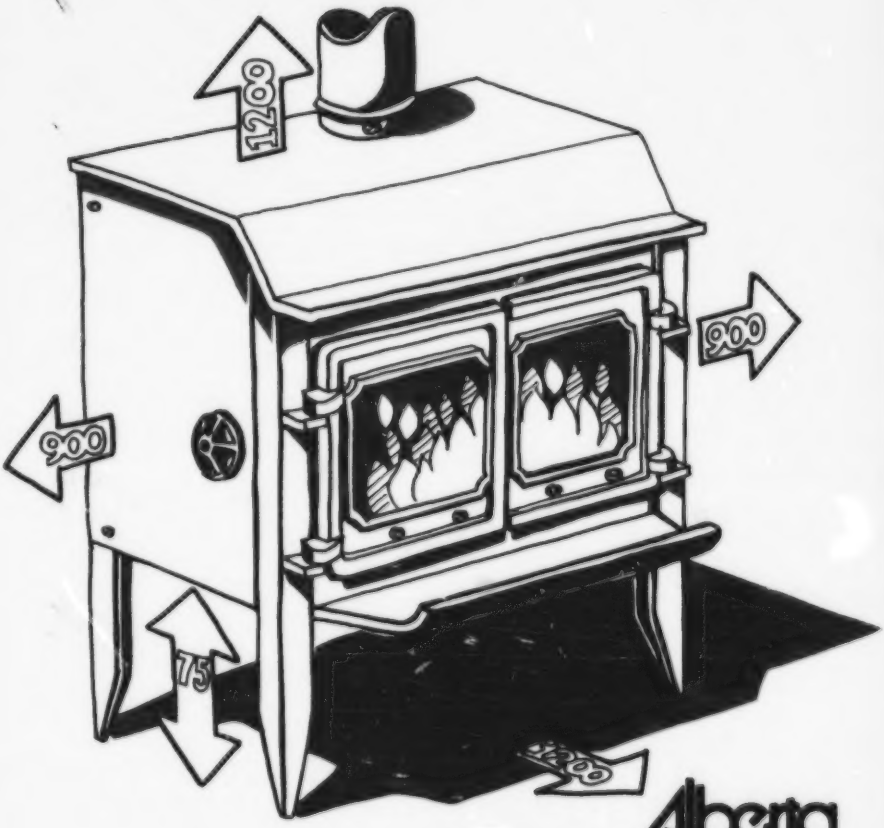
WOOD AND COAL BURNING APPLIANCES



Alberta

LABOUR
General Safety Services Division
Building Standards Branch

88-05121/

This booklet was prepared with assistance from
the Fire Prevention Branch of Alberta Labour
and the Edmonton Home Builders' Association

ISBN 0-919943-13-6 GSS-3-88-3-B-5M

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INTRODUCTION

Rising fuel prices over the past few years have caused an increase in the use of wood- and coal-burning equipment, also known as solid fuel-fired appliances.

There are many safety factors to consider when installing these appliances, and this booklet has been prepared to provide general guidelines on items that have been misunderstood in the past. It has been designed to supplement, not replace, the manufacturers' installation instructions that should be provided with each unit.

Every effort has been made to keep the text clear and simple. But to understand those technical terms which could not be avoided, please refer to the glossary on page 25 of this booklet.

GENERAL CONSIDERATIONS

If you're not sure what type of coal- or wood-burning appliance will best suit your needs, your first step should be to visit a retail outlet specializing in stoves, ranges and space heaters. From there you can decide whether to proceed with a do-it-yourself unit or to hire the expertise of a qualified tradesman. Your choice will depend on three things:

(a) your own talents as a handyman,
(b) the complexity involved in installing the type of appliance you would like, and
(c) the amount of money you wish to spend.

If you follow the do-it-yourself route, you will have several obligations to meet: you must carry out the project in accordance with the manufacturers' instructions, and you must ensure that the project meets building code and fire safety regulations.

In some areas of the province a permit is required before a solid fuel-fired appliance can be installed. To obtain information on whether a permit is necessary in your area, please contact your municipal building inspector or the nearest regional office of Alberta Labour's Building Standards Branch listed on page 26. It is your responsibility to obtain a permit if one is required.

If you have any doubts about your ability to install the unit, you would be wise to seek assistance from a qualified tra-

desman, or (at the very least) to contact a municipal or provincial building inspector who will be happy to offer advice.

Solid fuel-fired appliances are **not** suited for installation in enclosed areas where vehicles which could release flammable vapors may be stored or repaired.

APPLIANCES

This booklet will deal with the three most common varieties of solid fuel-fired appliances: stoves, space heaters and ranges.

STOVE: A stove is an appliance intended for cooking and space heating.

SPACE HEATER: A space heater is an appliance used for heating the space in which it is located.

RANGE: A range is a cooking appliance equipped with a cooking surface and one or more ovens. Although a range is designed mainly to prepare food, it can also act as a heating unit if the primary heat source has failed.

Both space heaters and stoves can be of the radiant or circulating type.

A radiant unit heats primarily by means of infrared radiation. Heat is transferred directly to surrounding objects, without heating the air in between. A common example of radiant heat is the way the sun heats our planet.

A circulating heater, on the other hand, heats by convection. Air is circulated, either by natural or mechanical (fan-assisted) means, between an inner wall and an outer shell of the appliance. In this process the air is heated and in turn circulates in the room in which the appliance is located.

A major consideration in deciding between radiant units and circulating units is surface temperature: the surface temperature of a radiant heater is higher than the surface temperature of a circulating heater.

Whenever stoves or space heaters are to be installed in mobile homes they must be tested and labelled for "use in mobile homes".

Look for a metal label since all stoves and space heaters must normally be listed and labelled as conforming to the appropriate standards specified in the Alberta Building Code (refer to the glossary under tested and labelled for further clarification). Where there is no metal label the unit will be unacceptable for use unless accepted by the local building inspector.

COMBUSTIBLE/ NONCOMBUSTIBLE MATERIALS

In order to install a wood- or coal-burning appliance properly, the person performing the installation must understand

the technical difference between combustible and noncombustible material.

The 1985 *Alberta Building Code* refers to a specific series of tests that must be performed on a material to determine whether it would be classed as combustible. All materials are evaluated using the same guidelines to avoid differences in interpretation.

Combustible Materials

Most materials will be classed as combustible. These include wood, gypsum board (drywall), plastics, cork, cinder (clean well-burned coal) concrete, batt insulation with combustible binder, and asphalt. Many adhesives are combustible, and if you install brick tile or stone facing, you should use a noncombustible mortar.

Noncombustible Materials

Brick, ceramic tile, glass, metals commonly used in building construction, granite, slate, limestone, marble and concrete made from a combination of portland cement and noncombustible aggregate are all classed as noncombustible materials. Even with small quantities of some combustible aggregates in the mix, concrete may still be classed as noncombustible.

■ COMBUSTIBLE/ NONCOMBUSTIBLE FLOORS

The floor in Illustration A is considered a combustible floor because both the supporting structural elements and the floor surface are combustible. In such cases, floor protection is required for both the floor surface and the supporting structure whenever solid fuel fired appliances are placed on them.

ILLUSTRATION A
Combustible Floor

The floor in Illustration B is also considered a combustible floor assembly because the supporting elements are combustible, even though the floor surface is noncombustible. In such cases, floor surface protection is not required if the solid fuel-fired appliance is mounted on legs to provide at least 100 mm (4 inches) clear space under the unit. It is also important that hot gases not come in contact with the base of the unit. However, units without legs must have floor protection to protect the combustible structural members from heat conducted through the floor.

ILLUSTRATION B
Combustible Floor Structure

Illustration C shows a noncombustible floor assembly with a noncombustible floor surface. No floor surface or supporting

structure protection is required when both the floor assembly and floor surface are noncombustible.

ILLUSTRATION C
Noncombustible Floor

FLOOR PROTECTION

Two different aspects of floor protection must be considered. These are:

i) floor **surface** protection to protect combustible floor surfaces against hot embers, sparks and radiant heat, and

ii) floor **structure** protection to protect combustible structural members from heat that is conducted through the floor.

In most residential applications both the floor surface and structure are combustible, and this booklet will deal specifically with these cases.

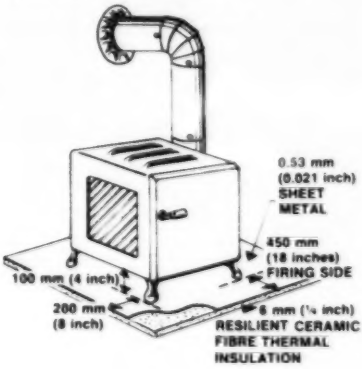
Tested and Labelled Appliances

Coal- and wood-burning appliances that have been laboratory tested will be labelled by the Underwriters' Laboratories of Canada (ULC), the Canadian Standards Association (CSA) or Warnock Hersey (WH). For tested and labelled units (appliances bearing a metal label on the back from ULC, CSA or WH), floor protection may only need to be a noncombustible material at least 12.5 mm (½ inch) thick. If your unit is labelled, refer to the installation instructions for guidance in this matter.

Non-Tested Appliances (No Metal Label — CSA, ULC, WH)

For units with legs that provide a clear space of at least 100 mm (4 inches) under the unit, and in which hot gases do not come in contact with the unit's base, the protection shown in illustration D is required.

ILLUSTRATION D
Floor Protection Method # 1



Illustrations E and F exhibit the protection necessary for units with legs that provide a clear space at least 75 mm (3 inches) high under the appliance. Again, hot gases must not come in contact with the unit's base.

ILLUSTRATION E
Floor Protection Method #2

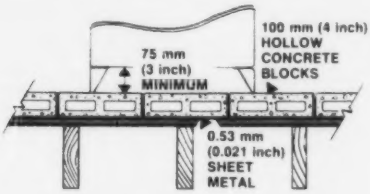
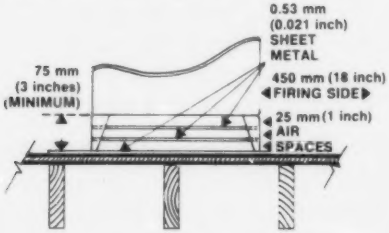
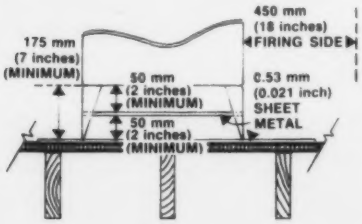


ILLUSTRATION F
Floor Protection Method #3



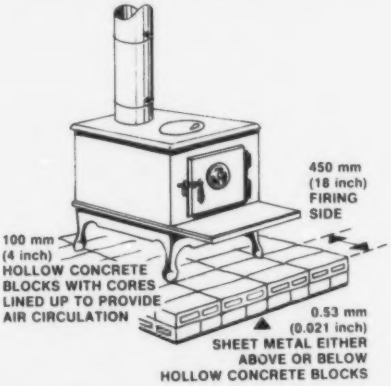
Units with legs that provide a clear span of at least 175 mm (7 inches) may use the protection shown in Illustration G.

ILLUSTRATION G
Floor Protection Method #4



The form of floor protection shown in Illustration H can be used for all units. This type of protection uses two layers of 100 mm (4 inches) thick hollow masonry blocks with the hollow cores lined up. The cores in the bottom layer are at right angles to the cores in the top layer in order to aid in the speed of heat dissipation.

ILLUSTRATION H
Floor Protection Method #5



A layer of sheet metal (0.53 mm in thickness) (0.021 inch) must be installed either above or below the masonry units to prevent sparks from coming into contact with a combustible floor surface.

All floor protection must extend 450 mm (18 inches) beyond the appliance on all firing and ash removal sides, and 200 mm (8 inches) on all other sides.

Tested and Labelled Floor Protection

There are also some floor protection materials that have been tested and labelled by Underwriters' Laboratories of

Canada. These materials are acceptable for use as long as they are installed according to the manufacturer's instructions.

***Safety tip #4:** When installing tested and labelled equipment and materials, ensure that you follow the installation instructions completely.*

■ COMBUSTIBLE/ NONCOMBUSTIBLE WALLS

With the exception of unfinished concrete or concrete block basement walls, virtually all walls in the standard home are combustible.

ILLUSTRATION I
Combustible Wall

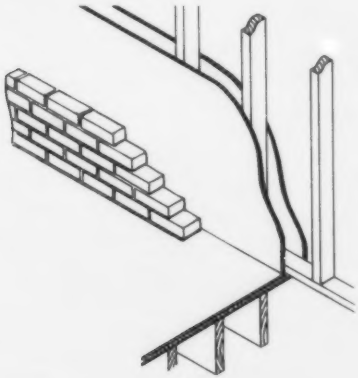


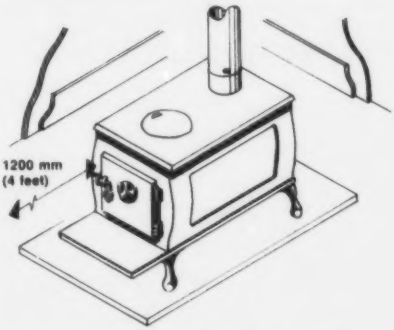
Illustration I provides an example of a combustible wall. The gypsum board (drywall) does not, in any way, reduce the clearance from an appliance to combustible materials because it has a paper facing that can ignite and burn. Also, brick facing material (or regular 90 mm (3½ inches) brick) will not decrease the clearance requirements if applied directly to the wall with no air space. Solid materials transmit heat very rapidly and after they have heated up, all faces of the material will be at close to the same temperature.

■ CLEARANCES TO WALLS

Non-Tested Units

Clearances are required between combustible materials such as walls and the sides and top of wood- and coal-fired appliances. The clearance for the firing side (front of the appliance) is the same in all cases at 1200 mm (4 feet) and must not be reduced.

ILLUSTRATION J
Firing Side Clearances



Clearance for the sides and back depends on whether the appliance heats by radiant or convective means and whether the appliance is completely refractory lined inside or not. Please refer to Table One and Illustrations K, L and M for comprehensive guidelines.

ILLUSTRATION K
Nontested Stove

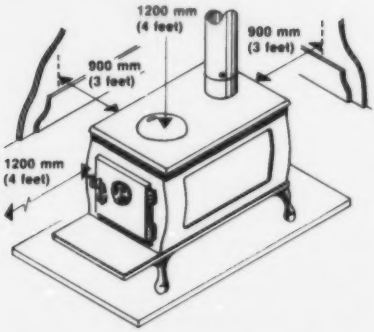


ILLUSTRATION L
Range — Side Clearance

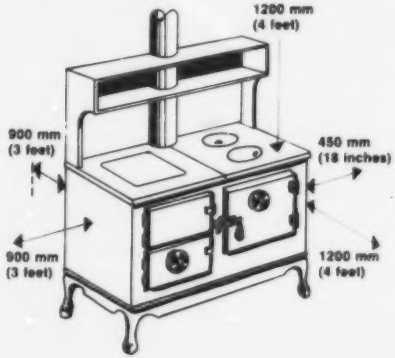


ILLUSTRATION M
Space Heater — Nontested

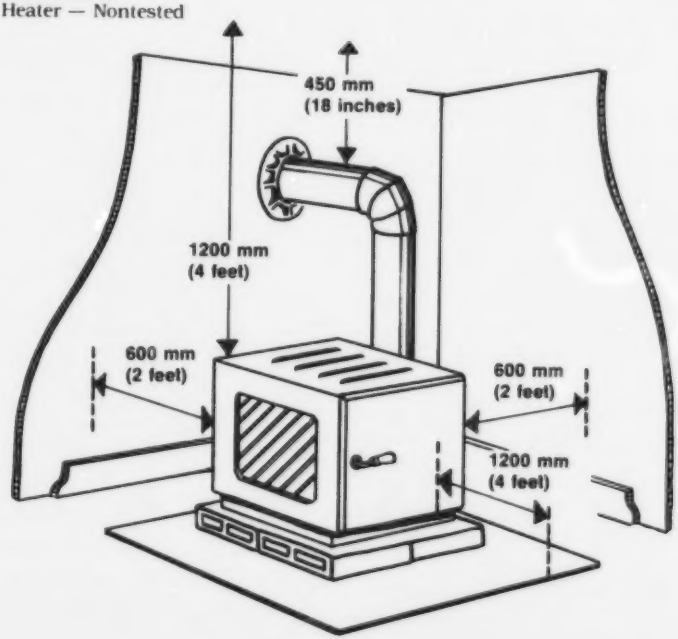


TABLE ONE (METRIC)

MINIMUM CLEARANCES TO COMBUSTIBLE MATERIAL FOR STOVES, RANGES AND SPACE HEATERS USING SOLID FUEL

Appliance	Minimum Clearance (mm)			
	Top	Sides	Rear	Front
Stoves and ranges without refractory lining	1 200	—	900	1 200
— Fire box side	—	900	—	—
— Other side (See Illustration L)	—	450	—	—
Stoves and ranges with refractory lining	1 200	—	600	1 200
— Fire box side	—	600	—	—
— Other side	—	450	—	—
Space heaters with at least 50 mm air space: — Between the outside of the fire chamber and external casing to allow air circulation (See Illustration M)	1 200	600	600	1 200
Space heaters other than above	1 200	900	900	1 200

Note:
The refractory lining referred to above must be on both sides and rear of the fire box and must extend the full height of the firebox.

TABLE ONE (IMPERIAL)

MINIMUM CLEARANCES TO COMBUSTIBLE MATERIAL FOR STOVES, RANGES AND SPACE HEATERS USING SOLID FUEL

Appliance	Minimum Clearance (inches)			
	Top	Sides	Rear	Front
Stoves and ranges without refractory lining	48	—	36	48
— Fire box side	—	36	—	—
— Other side (See Illustration L)	—	18	—	—
Stoves and ranges with refractory lining	48	—	24	48
— Fire box side	—	24	—	—
— Other side	—	18	—	—
Space heaters with at least 2 inches air space: — Between the outside of the fire chamber and external casing to allow air circulation (See Illustration M)	48	24	24	48
Space heaters other than above	48	36	36	48

Note:
The refractory lining referred to above must be on both sides and rear of the fire box and must extend the full height of the firebox.

TABLE TWO (METRIC)

CLEARANCE REDUCTIONS WITH PROTECTION

Minimum protection for combustible material	Percentage reduction from minimum clearances in Table One	
	Sides and Rear	Top
6 mm of acceptable resilient ceramic fibreboard spaced 25 mm by noncombustible spacers from the wall	50%	33%
0.33 mm sheet metal on 6 mm of acceptable resilient ceramic fibreboard	50%	33%
0.33 mm sheet metal spaced 25 mm by noncombustible spacers from the wall	67%	50%
Solid brick wall spaced at least 25 mm by noncombustible spacers from the wall	50%	N/A
Ceramic tiles on 0.33 mm sheet metal backing spaced 25 mm by noncombustible spacers from the wall	50%	50%

Note:
Protection materials tested and labelled by the Underwriters' Laboratories of Canada are acceptable for use as long as all materials are labelled and installation is conducted in accordance with the instructions provided.

Tested and Labelled Units

Some units have been tested and labelled by Underwriters' Laboratories of Canada, Canadian Standards Association or Warnock Hersey for clearances greater than those specified in Table One. In such cases the clearances shown on the label or given in the manufacturer's instructions must be followed to ensure that the appliance is installed in a safe manner.

However, if the clearances on the tested and labelled product are less than those stated in Table One, the reduced clearances are acceptable because the unit has been tested and is considered safe under such circumstances. But remember that all clearances are **minimum** values and should be treated as such when you are planning to install an appliance.

If you are a novice to wood- and coal-burning appliances, it may be best to purchase a tested and labelled unit because its installation instructions are likely to be more explicit than are those for untested units.

TABLE TWO (IMPERIAL)

CLEARANCE REDUCTIONS WITH PROTECTION

Minimum protection for combustible material	Percentage reduction from minimum clearances in Table One	
	Sides and Rear	Top
¼ inch of acceptable resilient ceramic fibreboard spaced 1 inch by noncombustible spacers from the wall	50%	33%
0.013 inch sheet metal on ¼ inch of acceptable resilient ceramic fibreboard	50%	33%
0.013 inch sheet metal spaced 1 inch by noncombustible spacers from the wall	67%	50%
Solid brick wall spaced at least 1 inch by noncombustible spacers from the wall	50%	N/A
Ceramic tiles on 0.013 inch sheet metal backing spaced 1 inch by noncombustible spacers from the wall	50%	50%

Note:
Protection materials tested and labelled by the Underwriters' Laboratories of Canada are acceptable for use as long as all materials are labelled and installation is conducted in accordance with the instructions provided.

WALL PROTECTION

Protection of combustible walls is covered in the 1985 **Alberta Building Code,** and protection methods listed in Table Two are acceptable. Unless a unit has been tested and listed for reduced clearance of less than 300 mm (12 inches), you should attempt to provide **at least** 300 mm (12 inches) from the sides and back of the unit even with wall protection.

Examples of Protected Walls

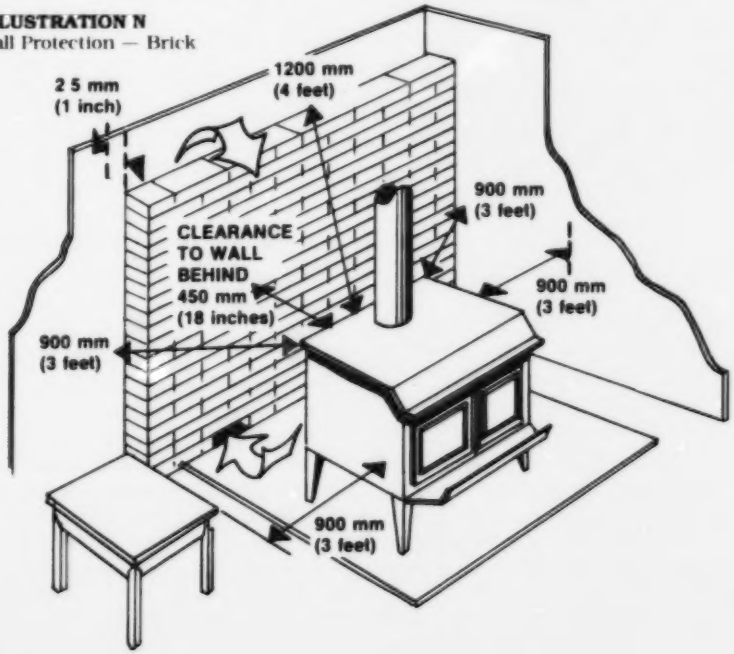
Illustration N demonstrates the method of protecting a wall from radiant heat given off by a solid fuel-fired appliance that is not equipped with a refractory lining. The shield cuts the required clearance from the appliance to the wall by half (i.e. from 900 mm to 450 mm) (36 inches to 18 inches).

***Safety tip #8:** Ensure that your building structure can support the added weight of the shield. Masonry must be supported on masonry, concrete or steel.*

Note that a 25 mm (1 inch) air space is required between the brick shield and the wall. Without this air space, no reduction in clearance is permitted since heat would be directly transmitted through the brick to the wall surface having the potential of starting a fire.

To assist in the natural flow of air around the shield, the

ILLUSTRATION N
Wall Protection — Brick



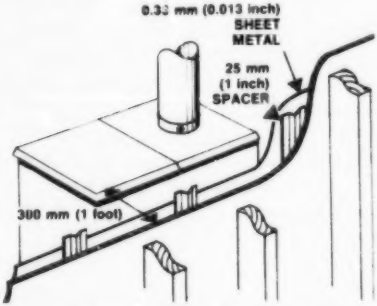
bottom contains air openings (see Illustration N), and there must be at least 75 mm (3 inches) clearance between the top of the brick shield and the ceiling.

Safety tip #7: Air must be free to circulate behind most forms of wall protection.

Using a sheet metal barrier supported from and in front of a combustible wall can reduce the required appliance-to-wall ratio by as much as two-thirds. Illustration O shows the proper installation of a sheet metal barrier, and the required distance from appliance to wall has been reduced to 300 mm (12 inches).

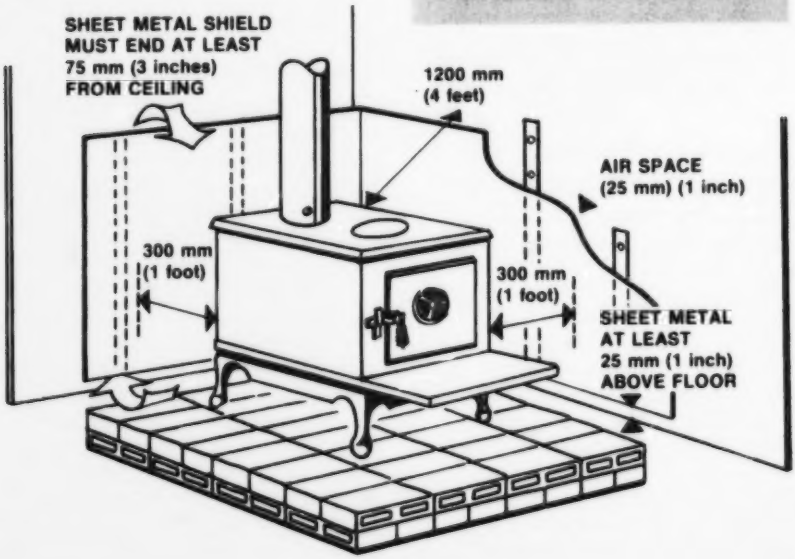
The barrier is spaced 25 mm (1 inch) from the wall by non-combustible spacers. And to assist in the natural flow of air, clearance of 75 mm (3 inches) at the top and 25 mm (1 inch) at the bottom of the shield are maintained.

ILLUSTRATION O (b)
Wall Protection — Sheet Metal



Safety tip #8: Brick and other solid materials will give no reduction in clearance without an air space between the shield and the combustible material.

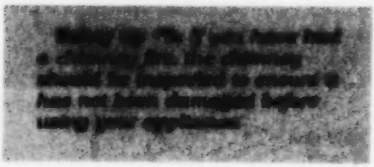
ILLUSTRATION O (a)
Wall Protection — Sheet Metal


SHEET METAL SHIELD MUST END AT LEAST 75 mm (3 inches) FROM CEILING
1200 mm (4 feet)
AIR SPACE (25 mm) (1 inch)
300 mm (1 foot)
300 mm (1 foot)
SHEET METAL AT LEAST 25 mm (1 inch) ABOVE FLOOR

CHIMNEY SYSTEMS

Masonry

Solid fuel-fired appliances may be attached to lined masonry chimneys built in accordance with the 1985 **Alberta Building Code.** But before a solid fuel-fired appliance is connected to it, the existing masonry chimney must be inspected for adequate clearances, integrity of liner, type of liner, thickness of the masonry surrounding the liner, and general overall condition. Slow burning solid fuel fired appliances must be provided with their own separate chimney flue. If your existing chimney has gas or oil fired appliances venting into it you should not use it to vent solid fuel fired appliances as well.



Class "A" (Normal Operating Temperature 538 degrees C (1000 degrees F) or Less)

Since March 1984 new chimneys of this type have labels which state they are suitable for use only with gas- and liquid fuel-fired appliances. Therefore Class "A" chimneys with this new label cannot be accepted for use with solid fuel-fired appliances. This change in labelling will not be applied to existing Class "A" chimneys, but the operator of the appliance must ensure that flue gas temperatures do not exceed 538 degrees C (1000 degrees F). Class "A" chimneys must be cleaned regularly to reduce the risk of chimney fires.

Super "A" (Normal Operating Temperature 650 degrees C (1200 degrees F) or Less)

Since March 1984 this category of chimney is the only type of factory-built chimney acceptable for use with solid fuel-fired appliances (an exception to this is factory-built fireplaces which are tested and labelled for use with specific chimneys).

Gas Vents ("B")

These vents are suitable only for specific types of gas-fired appliances, and are **not** suitable for solid fuel-fired appliances.

Stovepipes ("C")

Also called blackpipe, single wall stovepipe is for use as a chimney connector only. It must be as short and straight as possible (not exceeding three metres (10 feet) in horizontal length) and consist of black steel or stainless steel. Galvanized steel is not acceptable because the metal coating is driven off at standard operating temperatures, thereby reducing the thickness and corrosion resistance of the flue pipe. Slip joints in flue pipes must fit tightly, be secured with screws and have a minimum overlap of 40 mm (1½ inches).

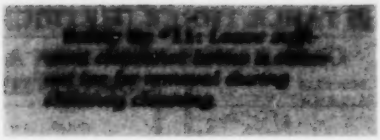
Stovepipe must be a minimum 0.41 mm (0.016 inch) thick if less than 152 mm (6 inch) in diameter, and 0.53 mm (0.021 inch) thick up to 203 mm (8 inch) in diameter.

Many types of stovepipe currently available in the marketplace meet 1985 **Alberta Building Code** requirements, but they may not be the best choice because of high technology appliances now being used by consumers. Deterioration of paint finish, lack of an air-tight seal, and creosote leakage at the joints are a few problems associated with various types of stovepipe. Contact your solid fuel-fired Equipment dealer for further information on stovepipe selection.

Stovepipe clearance is usually 450 mm (18 inches) from unprotected combustible material. However, this clearance may be reduced if the combustible material is protected or if the stovepipe is part of a tested and labelled system such as connection to ceiling or wall supports.

Pipe deflectors that are tested and labelled may be installed to reduce stovepipe clearances.

Stovepipe should always be exposed for visual inspection. It must never pass through a wall, floor or ceiling, and must only be used as a chimney connector.



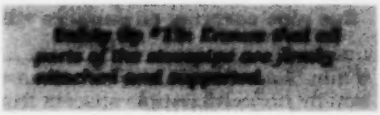


ILLUSTRATION P
Stovepipe Clearances

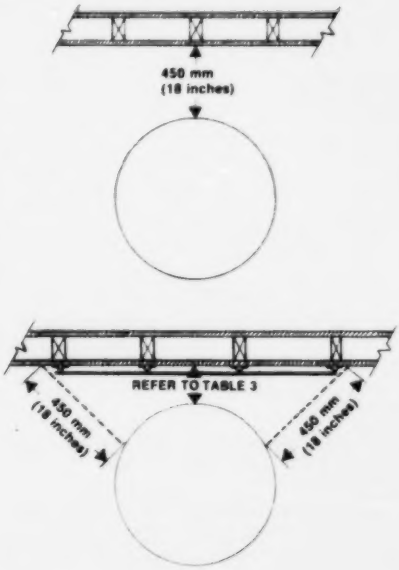


TABLE THREE (METRIC)

CLEARANCE BETWEEN A FLUE PIPE AND PROTECTED COMBUSTIBLE MATERIAL

Type of protection applied to combustible material or flue pipe covering all surfaces within 450 mm of flue pipe	Clearance between flue pipe and combustible material (mm)
6 mm of acceptable resilient ceramic fibreboard spaced 25 mm by noncombustible spacers from the wall	300
0.33 mm sheet metal on 6 mm of acceptable resilient ceramic fibreboard	300
0.33 mm sheet metal spaced 25 mm from combustible surfaces or the flue pipe by noncombustible spacers	225
0.33 mm sheet metal on 3 mm acceptable resilient ceramic fibreboard spaced 25 mm by noncombustible material from the wall	230
Ceramic tiles on noncombustible supports and spaced at least 25 mm by noncombustible material from the wall	300
Solid brick wall spaced at least 25 mm by noncombustible spacers from the wall	225

TABLE THREE (IMPERIAL)

CLEARANCE BETWEEN A FLUE PIPE AND PROTECTED COMBUSTIBLE MATERIAL

Type of protection applied to combustible material or flue pipe covering all surfaces within 18 inches of flue pipe	Clearance between flue pipe and combustible material (inches)
¼ inch of acceptable resilient ceramic fibreboard spaced 1 inch by noncombustible spacers from the wall	12
0.013 inch sheet metal on ¼ inch of acceptable resilient ceramic fibreboard	12
0.013 inch sheet metal spaced 1 inch from combustible surfaces or the flue pipe by noncombustible spacers	9
0.013 inch sheet metal on ⅛ inch acceptable resilient ceramic fibreboard spaced 1 inch by noncombustible material from the wall	9
Ceramic tiles on noncombustible supports and spaced at least 1 inch by noncombustible material from the wall	12
Solid brick wall spaced at least 1 inch by noncombustible spacers from the wall	9

DOUBLE WALL CHIMNEY CONNECTORS

(Flue Pipes)

Chimney connectors (which join the appliance to the chimney) must be tested and labelled by recognized testing agencies such as ULC, CSA and WH. These connectors must not penetrate walls or ceilings. They must run exposed and only in the room in which the appliance to which they are connected is located.

SPECIAL CONSIDERATIONS FOR CHIMNEY SYSTEMS

- Chimney supports are designed for specific functions and for specific chimney heights. Variations from the installation instructions must not be attempted.

ILLUSTRATION Q
Ceiling Support

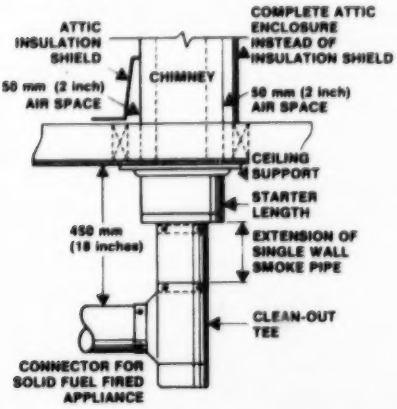

ATTIC INSULATION SHIELD
COMPLETE ATTIC ENCLOSURE INSTEAD OF INSULATION SHIELD
CHIMNEY
50 mm (2 inch) AIR SPACE
50 mm (2 inch) AIR SPACE
CEILING SUPPORT
STARTER LENGTH
450 mm (18 inches)
EXTENSION OF SINGLE WALL SMOKE PIPE
CLEAN-OUT TEE
CONNECTOR FOR SOLID FUEL FIRED APPLIANCE

ILLUSTRATION R
Wall Support

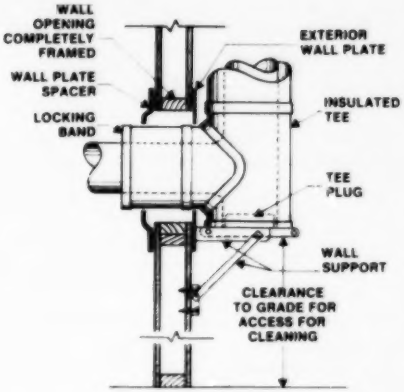
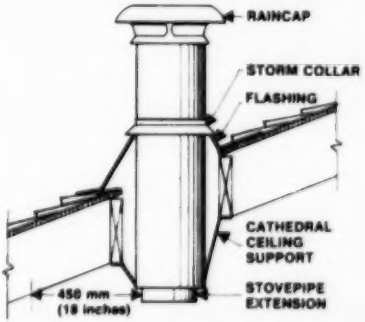


ILLUSTRATION S
Cathedral Ceiling Support



Safety tip #13: Proper support is critical to ensure that the chimney will not come apart at the joints if a chimney fire occurs.

- The proper connection of the single wall stovepipe to the chimney is important. The stovepipe must remain in place if a chimney fire occurs. If not rigidly connected it could separate from the chimney during a chimney fire

spreading burning creosote (flammable chimney deposits) into the room.

- For draft and support of the chimney, minimum and maximum height are critical.
- Where it passes through other floor areas, the chimney must be provided with an enclosure. Because the outside of the chimney becomes hot, it can cause burns and set combustible material on fire if direct contact is made.
- Insulation must not be in direct contact with the chimney unless the chimney has been tested and labelled for such use. Most chimneys have attic insulation spacers to maintain proper clearances between chimney and insulation. These spacers are necessary even though a manufacturer may offer them as an option.

■ SPECIAL POINTS TO CONSIDER

The manufacturer of a factory-built chimney must provide an approved set of installation instructions for the specific chimney system that he makes. These instructions must also be available to each purchaser of the chimney.

The new, high-efficiency solid fuel-fired appliances are very sensitive to variations in chimney draft. To keep appliances operating safely and at designed efficiency, the following items should be considered:

Draft Condition

Insufficient draft can be caused by installing a chimney of insufficient height, attaching other appliances to the same chimney (the 1985 **Alberta Building Code** does not permit this), maintaining too large a chimney flue cross-sectional area, mounting a chimney on an exterior wall outside the building (which causes the chimney to be too cold) or operating the appliance in an air-tight building.

Conversely, too great a chimney draft also causes problems, and this is often caused by a chimney that is too high for the appliance or by positive pressure in the building. Too great a draft can cause overfiring of the appliance. Most solid fuel-fired appliance dealers have equipment to measure chimney draft and will also supply information concerning the correct amount of draft required for your appliance.

Exposed Exterior Chimneys

If you locate your chimney on the outside of the building you may experience the following cold weather problems:

(a) The appliance may be extremely difficult to light in cold weather because of a reversed flow of air in the cold chimney (in other words, air will flow down the chimney rather than up, which makes it difficult to get the fire started, until the chimney is heated up).

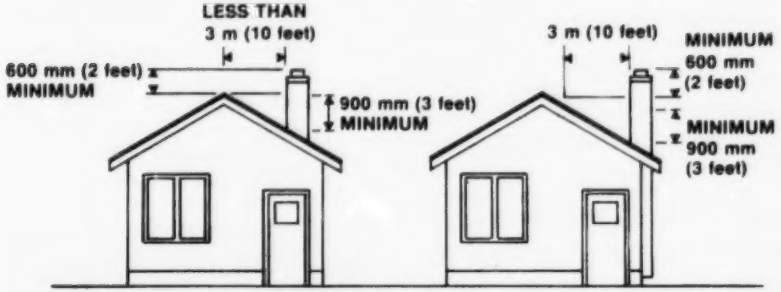
(b) In extremely cold weather the temperature of the flue gases may drop to a level where high levels of creosote will be deposited. As a result, there may be insufficient draft and this will affect the operation of high-efficiency appliances.

If your appliance is already equipped with an exposed exterior chimney, you may lessen the problems by building an insulated enclosure around the chimney. However, insulation must be placed between wood studs and not in direct contact with the chimney, and an air space is required around the chimney to keep it from overheating. This enclosure will protect the chimney from rapid heat loss due to wind effects (convection) and will also cut down conduction and radiant-heat losses.

If you experience problems with lighting your appliances, your dealer should be able to furnish you with helpful tips in this area.

ILLUSTRATION T
Chimney Termination

Minimum chimney height for flat roofs and where chimney is at the peak of a sloped roof.



Minimum height in all other cases (select the highest)

■ ACCESSORY EQUIPMENT

Stovepipe Thermometers

These thermometers can assist you in operating your appliance safely and efficiently.

There are three types:

(a) mechanical (bimetal strip),
(b) electronic (digital readout), and
(c) electronic with stack temperature alarm.

Smoke Alarm

Whenever a solid fuel-fired appliance is installed in a home, smoke alarms should be installed between the appliance and any sleeping areas.

Metal Container

A metal container should be used to transfer the ashes from the appliance to the outside, since hot embers can be present even when the fire has been "out" for days.

Insulated Gloves

These are not mandatory for operating coal- and wood-burning appliances, but they may save you from painful burns.

Catalytic Combustors

If during the operation of your appliance you encounter excessive creosote formation in the chimney, catalytic combustors may be of some assistance in certain specific cases (catalytic combustors are only to be used with tested and labelled appliances). However, if catalytic combustors will not cure the problem, you should investigate other areas. Are you using a low-grade fuel? Is the chimney too cold? Is your appliance too large, causing too slow a burn? Or is your chimney flue too large (slow moving gases cool rapidly and if the temperature drops too low, creosote will form in the chimney)?

Heat Reclaimers

Stovepipe heat reclaimers are not acceptable for use in venting systems that serve solid fuel-fired appliances.

■ OPERATION AND MAINTENANCE

- The chimney and stovepipe must be cleaned and checked regularly. The cleaning schedule will depend upon amount of use, material burned, chimney location and type of unit. These factors, of course, will vary with each installation and will have to be determined by the appliance operator. The chimney should be cleaned when creosote deposits exceed 6 mm (¼ inch) in thickness.

- Ashes must only be stored in noncombustible containers (such as metal cans) with lids. These containers should not be stored in the house when they have ashes in them, and should be taken outside and placed on a noncombustible surface as soon as possible.
- Burn only those materials for which your appliance was designed. When in doubt, refer to the installaton instructions.
- During the heating season, check the unit at least once a month for cracks and other signs of deterioration.
- Ensure that the smoke alarms installed in your house are kept in working order.
- An approved multipurpose dry chemical fire extinguisher should be installed near an exit door.
- Never move furniture into, or install curtains within, the clearance area required for your appliance. Remember too that curtains may be blown considerable distances when windows are open.
- Do not overfire your unit. Most suppliers of solid fuel-fired equipment have devices such as stack temperature thermometers that can be attached to your stovepipe to assist you in maintaining the correct operating temperature.
- Care and judgement are required if small children or pets are in your home. Proper supervision, as well as protective screens and barricades, will help prevent the severe burns that can occur if an appliance is accidentally touched or fallen against.
- Read and follow all safety precautions supplied by the manufacturer. Be particularly careful when opening doors of units, since flame and hot gases could be forced out into the room if the loading door is opened rapidly. This hazard could seriously injure someone standing too close to the unit.
- Develop and practice an escape plan from your home so that you and your family will be prepared if an uncontrolled fire happens.

COMBUSTION AIR

Whenever appliances burn fuel, air is required for the combustion process; air from inside the home used in the combustion process is expelled through the stovepipe and chimney. This air must be replaced to ensure that the operation of other appliances in your home, such as gas-fired furnaces and hot water heaters, is not adversely affected because of a lack of combustion air.

There are appliances available on the market which are capable of drawing air from outside the home directly into the fire chamber of the appliance. Any units that have such a "direct supply" of combustion air must be tested and labelled for this application. Complete instructions must be supplied with the unit to explain how the combustion air duct should run and should be connected to the fire chamber of the appliance.

Combustion air that is taken from inside the home must be replaced, and this can often be accomplished by installing a duct leading directly from outside the building into the room where the appliance (stove, space heater or range) is located. This duct should be as short and straight as possible and should have the same cross sectional area as the inside of the stovepipe (or chimney) that serves the appliance. A damper-ing mechanism is also required so that the duct may be closed when the appliance is not in operation.

With older homes that have a high infiltration rate, the local inspector may accept the installation of an appliance without special provision for combustion air. However, remember that if you decide to weatherstrip and seal your home you must ensure that enough combustion air is available for all of your fuel-fired appliances (fireplaces, stoves, space heaters, ranges, furnaces and hot water heaters). If you are unsure of combustion air requirements for your home, or would like to use another method of providing combustion air, call your local building inspector or the nearest regional office of the Building Standards Branch listed on page 26 of this booklet. There are numerous methods of providing combustion air, so do not feel you are restricted only to those mentioned here, which have been listed to assist you because they are acceptable for the majority of appliance installations.

Remember, insufficient combustion air can adversely affect the operation of other appliances in the building, and this could lead to a build-up of carbon monoxide in the home.

GLOSSARY

Clearance: The distance between a direct flame (or a surface with a potentially high temperature) and combustible material.

Combustible material: Material that fails to conform to CAN4-S114, "Standard Method of Test for Determination of Noncombustibility in Building Materials" (most materials from animal or vegetable sources) will be classed as combustible. Examples are wood, paper, cork, plastics, asphalt and pitch. Materials made of a combination of combustible and noncombustible elements may also be classed as combustible. Examples are cinder (clean well-burned coal) concrete, batt insulation with combustible binder, and gypsum board (drywall — because it has paper on both sides).

Combustion air: The air necessary to support a fire and assist in smoke-free operation of the appliance. This air may be ducted directly to the fire chamber, or may simply enter the room in which the appliance is located through openings or air vents.

Firestop: A metal plate that blocks off the space between the chimney and the framing members at each floor (ceiling) level. These also provide lateral support for the chimney.

Noncombustible material: A material that conforms to CAN4-S114, "Standard Method of Test for Determination of Noncombustibility in Building Materials." Examples are brick, concrete made from portland cement with noncombustible aggregate, asbestos cement, ceramic tile, metals commonly used in buildings, glass, granite, sandstone, slate, limestone and marble.

Tested and labelled: Means that the unit meets one of the following standards:

CSA B366.1-M, "Solid Fuel Fired Appliances for Residential Use," or

CSA B366.2-M "Space Heaters for Use with Solid Fuels."

To determine whether the unit you have chosen meets the requirements, look for one of the following metal labels attached to the unit (normally on the back side):

(ULC) Underwriters' Laboratories of Canada
(WH) Warnock Hersey (Canada) Inc.
(CSA) Canadian Standards Association

If such a label is present, the unit can be described as "tested and labelled."

ALBERTA LABOUR
BUILDING STANDARDS
BRANCH

REGIONAL OFFICES

EDMONTON
Room 201, 10339 - 124 Street
Edmonton, Alberta
T5N 3W1
(Tel. 427-6461)

CALGARY
Deerfoot Junction, Tower 3
1212 - 31 Avenue, N.E.
Calgary, Alberta
T2E 7S8
(Tel. 297-5765)

For toll-free dialing, please
contact your local Alberta
Government R.I.T.E. Operator.